Science Update

Sweeping Away Weeds

A common farm tool, the sweep cultivator, can reduce most of the threat from downy brome in Pacific Northwest winter wheat fields. Downy brome and other bromes infest 14 million acres of western winter wheat. They rob yields to the tune of $300 million a year. But ARS scientists have found that the broad, flat sweep cultivator—if used right after wheat is harvested—makes the field's weed seeds germinate quickly. Weeds can then be easily killed by herbicide or cultivation in the fallow year. Unless forced to sprout, however, the seeds stay dormant through winter. They germinate a year later—when a new wheat crop is planted. "Sweeping" weeds also helps protect the soil from erosion. It doesn't invert soil or chop straw left to shield the soil surface, unlike some mechanical approaches to weed control. *Frank Young, USDA-ARS Nonirrigated Agriculture Weed Science Research Unit, Pullman, Washington, phone (509) 335-1551.*

Lure Could Stop Gypsy Moths From Finding Mates

The love life of the gypsy moth—the worst insect pest of trees in the eastern United States—may suffer some aerial sabotage. Scientists are refining technology for using aircraft to deliver tiny sex-attractant dispensers to the tree canopy. There, they would saturate the air with a synthetic form of the female moth's chemical sex attractant or pheromone. This would confuse male moths trying to home in on real females, and the pests would be unable to produce tree-defoliating caterpillar offspring. The dispensers are soft plastic beads or flakes less than 3 millimeters in size. They would be used as an insecticide-free defense against isolated or low-level infestations of the pests. In studies, the fake pheromone prevented nearly all the moths from mating. The number of fertile egg masses on the pheromone-protected trees was cut by 75 to 100 percent compared to trees in untreated plots. Earlier versions of the dispensers wore a sticky coat so they'd stay attached to tree leaves, branches, or trunks. But scientists want to test dispensers without the coat, to see if this will avoid clogging the nozzles of plane-borne spray equipment. In late June they'll test-spray a nonsticky version of the flakes over 225 acres of forest in Augusta County, Virginia. Originally from Europe, the gypsy moth attacks many species of trees in a region stretching from New England west to Michigan and south to North Carolina. *Kevin Thorpe, USDA-ARS Insect Biocontrol Laboratory, Beltsville, Maryland, phone (301) 504-5139.*

JACK DYKINGA (K1557-5)

Harvesting guayule at a University of Arizona test field near Tucson.

Guayule Latex Process Is Licensed

A Philadelphia company, Yulex Corp., has received a license to use an ARS-patented procedure for making hypoallergenic latex from the rubber of guayule ("why-YOU-lee"), a native southwestern shrub. Guayule is known to botanists as *Parthenium argentatum*. It's grown experimentally in California, Arizona, New Mexico, and Texas. But the Yulex license may signal an important new step toward making guayule a commercial crop. It is estimated that at least 20 million Americans suffer from allergies to certain proteins in natural latex derived from rubber of *Hevea brasiliensis*, the Brazilian rubber tree. High-quality guayule latex may offer a safe alternative for people with *Hevea* allergies, according to preliminary medical tests. ARS collaborated in the tests with the Woodland Clinic Medical Group in Woodland, California; Rhode Island Hospital in Providence; and Johns Hopkins University School of Medicine in Baltimore, Maryland. *Katrina Cornish, USDA-ARS Western Regional Research Center, Albany, California, phone (510) 559-5950.*

Less July Thirst Means More September Cotton

Cotton plants yielded 5 to 11 percent more by drinking smaller, more frequent sips of the same amount of irrigation water they would normally get in July. ARS scientists developed the approach in California's Imperial Valley. In a 3-year test, they applied about 1-1/2 inches of water every 5 days in July. The traditional regimen calls for 3 inches every 10 days or 5 inches every 15 days. Many people have thought this necessary to flush away crop-damaging salts. But the scientists found no salt buildup in the top 6 inches of soil. The frequent July irrigations also reduced heat and moisture stress on the plants and seemed to make them less attractive to silverleaf whiteflies, major pests of Southwest cotton. *Chang-Chi Chu and Thomas J. Henneberry, USDA-ARS Western Cotton Research Laboratory, Phoenix, Arizona, phone (602) 379-3524.*